traditional verbal (discussion only) consent prior to administration of intravenous consent for CT scan.

Methods: A prospective, randomized controlled trial was conducted on a convenience sample of ED patients at an academic Level I trauma center who were scheduled for an IV contrast study. Patients were divided into two groups based upon the last digit of their randomly generated medical record number (even/odd). The control (odd) group received non-scripted verbal information given by their health care provider as a basis for the informed consent. The experimental (even) group received an educational brochure available in English, Mandarin Chinese, Korean, Russian or Spanish, based on patients self-reported language preference, followed by the providers return to give additional verbal information if requested by the patient. Translation phones were used for all foreign language discussions. After patients received the information, research staff returned to obtain demographic information from patients and conduct a brief survey to assess their post-consent knowledge of the risks, benefits and alternatives for IV contrast.

Results: Enrolled patients totaled 113, with 56 randomized to the control group and 57 in the experimental group. Median age was 50.1 years. Fifty-nine (52.2%) were male. Ninety-two (81.4%) patients spoke English. Of the participants in the experimental group, 43 (75.4%) read the entire brochure. There were no significant differences in the age, sex, education or language of patients in the control and experimental groups. As opposed to patients in the control group, patients who received the brochure were significantly more likely to recall specific benefits of the IV contrast study, OR 2.5 (95% CI[1.2, 5.2]); more likely to recall at least 2 adverse effects of IV contrast, OR 4.0 (95% CI [1.3, 11.8]); more likely to recall one organ at risk of IV contrast, OR 3.9 (95% CI [1.8, 8.5]); more likely to recall a medical condition that puts one at higher risk of adverse events, OR 11.4 (95% CI [4.2, 31.0]).

Conclusions: An educational brochure appears to help patients better understand risks and benefits of IV contrast studies. Further research should focus on the optimal delivery of this type of enhanced information.

127 Emergency Department Crowding and Physician Inexperience are Synergistically Associated With Increased Physician Errors

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Study Objectives: This study aimed to determine if there was an increased risk of emergency physician (EP) errors occurring during periods of emergency department (ED) crowding defined as higher than average ED census and higher than average number of inpatients boarding in the ED. In addition, we examined whether physicians' level of experience influenced the frequency of errors and whether level of experience mitigated the expected negative effect of crowding.

Methods: All ED peer review cases from 2008-2012 at a 90,000 annual visit urban teaching hospital that were categorized as standard of care "not met" or "standard of care questionable, outcome related" were retrospectively evaluated for the experience of the treating physicians as well as ED crowding factors during the time of patient treatment. Using data obtained from an archived census database, the ED census and number of patients boarding at the time of patient disposition were evaluated as risk factors for EP errors. In addition, time in years post-residency, time at the institution, and the duration of time working in the shift involved were also evaluated as potential risk factors contributing to EP errors in these cases.

Results: A total of 69 cases were reviewed involving 22 different EPs with a mean 6.5 years (95% CI:2.3-10.4) post-residency and 4.2 years' experience at this ED. The mean ED census at time of EP error was 61.2 (95% CI:43.5-77.2) with a mean of 13.3 patients boarding (95% CI: 10.4-16.2). There were fewer patients both in the ED mean 57.1 (95% CI:44.9-60.0) and decreased patients boarding 12.0 (95% CI: 10-2-13.8) in the control group without critical errors; ($p \leq 0.02$) The EP on average completed 70.5% of his shift or 5.9 hours already on duty when the mistake occurred. Relative Risk (RR) for a treating physician to make an error with high census and more patients boarding was 3.5. More experienced physicians (>= 3 years departmental experience) had fewer errors during high census and boarding periods than EP with < 3 years departmental experience. The combination of ED crowding and EP with < 3 years' experience was associated with increased occurrence of errors than those more experienced and seeing patients in less crowded times.

Conclusions: As expected, ED crowding with high census and significant inpatient boarding along with EP practice inexperience creates an environment with an increased risk for clinically significant errors than either alone. Unfortunately, these factors combine in a synergistic fashion, and must be addressed in a multifactorial way to help reduce chance of errors and improve patient care.

128 A Comparison of Urine versus Saliva Testing for Drug Exposure in an Emergency Department Population

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Study Objectives: Laboratory testing to confirm drug exposure can be performed on urine or saliva. When testing for a pre-selected sample of drugs, how does urine testing compare with saliva testing in an emergency department (ED) population?

Methods: This study was approved by the university's institutional review board. This study was a prospective cohort study performed in an urban tertiary care university hospital. Included were patients 18 years of age or older who presented to the ED and reported use of one or more medications and who could provide urine and saliva samples. Excluded were non-English speaking patients, prisoners, and subjects incapable of providing informed consent. Urine samples were collected. Saliva samples were obtained using the Quantisol saliva collection device. Liquid chromatography-mass spectrometry/mass spectrometry and liquid chromatography-time of flight/mass spectrometry were performed for each urine and saliva sample. These samples were tested for 205 pre-selected analytes which reflected parent drug or metabolite of a parent drug. The most commonly detected analytes were identified. Analysis was performed to compare urine testing results to saliva testing results for these analytes. Percentage agreement with 95% confidence intervals (CI) and kappa values for agreement with 95% CI were calculated.

Results: One hundred patients were enrolled, 76 patients provided both urine and saliva samples. One patient withdrew. 51/75 patients were male. Average age was 51 years. 87 drugs or drug metabolites were detected. The most frequently detected analytes in urine and saliva are listed in the Table.

Conclusions: Overall, the strength of agreement between urine and saliva testing for drug exposure is highly variable. Agreement was good for most of the opioids. Among the most common analytes detected, poor agreement was mainly due to the superiority of urine testing.

Table. Agreement of urine testing versus saliva testing of analytes.

Analyte	Percentage Agreement	95% CI	Kappa	95% CI	Strength of Agreement
Acetaminophen	43	32 to 54	0	0 to 0	Poor
Hydrocodone	95	90 to 100	0.842	0.693 to 0.991	Very good
Hydromorphone	91	85 to 97	0.665	0.436 to 0.893	Good
Metoprolol	99	97 to 100	0.945	0.837 to 1.00	Very good
Morphine	95	90 to 100	0.769	0.553 to 0.986	Good
Gabapentin	88	81 to 95	0.262	0 to 0.584	Fair
Guafenesin	84	76 to 92	0	0 to 0	Poor
Oxycodone	87	79 to 95	0.486	0.231 to 0.740	Moderate
Ibuprofen	89	82 to 96	0	0 to 0	Poor

129 The Boarding Experience From the Patient Perspective: The Wait

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Study Objective: Boarding is associated with longer hospital length of stay, delays, errors, adverse events, and mortality. As no study has examined the experience of boarding from the patient perspective, we sought to better understand the experience of being a boarder patient.

Methods: We conducted a qualitative study between March and August, 2012 to examine the experience of boarding in an urban, teaching hospital with 90,000 annual emergency department (ED) visits. We included patients boarded in our ED (defined as staying at least 5 hours after bed request time) and excluded patients too unstable to participate. We selected patients based on purposive selection of days when patients were most likely to be boarding. Interviews were semi-structured, consisting of eight main open-ended questions. Based on inductive research methods, the